

- 13.2.4.4.2.1.2.1. A maximum of 1 A/D conversion, using 64Kbps m-law (m=255) PCM;
- 13.2.4.4.2.1.2.2. No voice compression;
- 13.2.4.4.2.1.2.3. No echo cancellation; and
- 13.2.4.4.2.1.2.4. Robbed bit signaling only if SS7 or ISDN are not used.
- 13.2.4.4.2.2. Slips
  - 13.2.4.4.2.2.1. Slips occur when a frame of digital data is either deleted or repeated because of differences in the clocks used to synchronize digital facilities. Slips sound like clicks or pops on voice calls and have major impact on voiceband data performance.
  - 13.2.4.4.2.2.2. The NID-to-interexchange carrier point of termination portion of connections shall have fewer than 0.45 slips every 24 hours on average.
- 13.2.4.4.2.3. Digital Timing Jitter and Wander
  - 13.2.4.4.2.3.1. Digital timing jitter is the unwanted phase modulation of digital signals at rates above 10 Hz. Wander is the unwanted phase modulation of digital signals at rates below 10 Hz. Digital timing jitter is caused by imperfections in the timing recovery process of repeaters and the stuffing synchronization process used by multiplexer/demultiplexers. Wander is caused by slowly varying changes in digital signal phase due to clock frequency offset and drift, changes in propagation delay of terrestrial facilities due to temperature changes and changes in the distance of satellites from the earth. These events have a major impact on voiceband data performance.
  - 13.2.4.4.2.3.2. The maximum digital timing jitter allowed in the 10 Hz to 8 kHz frequency band at any network interface or any terminal equipment in the network is 5 Unit Intervals (UI). The maximum digital timing jitter allowed in the 8 kHz to 40 kHz frequency band is 0.1 UI. The objective for wander is less than 28 UI at any network interface or terminal equipment.
- 13.2.4.4.2.4. DS-1 Errored Seconds
  - 13.2.4.4.2.4.1. An Errored Second (ES) on a DS-1 facility is any second during which at least 1 bit is in error. The impact of an ES on performance depends on the number of errors that occur during a second.

Typically, voice performance is not significantly impacted by ES but they can cause errors in voiceband data transmissions.

- 13.2.4.4.2.4.2. Each GTE network shall have less than 20 ESs per 24 hour period.
- 13.2.4.4.2.5. DS-1 Severely Errored Seconds
  - 13.2.4.4.2.5.1. A severely Errored Second (SES) is any second during which a DS-1 has an error rate exceeding 0.001. An SES can be caused by a loss of framing, a slip, or a protection switch. SESs have impacts on both voice and voiceband data performance. For voice, an SES will sound like a burst of noise or static. SESs that occur during a voiceband data transmission cause a significant burst of errors and can cause modems to retrain.
  - 13.2.4.4.2.5.2. The digital portion of each NID to POP connection shall have less than 2 SESs per 24 hour period).
- 13.2.4.4.2.6. Short Failure Events
  - 13.2.4.4.2.6.1. A Short Failure Event (SFE) is a Loss of Frame (LOF) event of less than two minutes' duration. An LOF event is declared when, on detection of a Loss of Signal (LOS) or Out-of-Frame (OOF), a rise-slope-type integration process starts that declares a LOF after  $2.5 \pm 0.5$  sec. of continuous LOS or OOF. If the LOS or OOF is intermittent, the integration process shall decay at a slope of 1/5 the rise slope during the period when the signal is normal. Thus, if the ratio of a LOS or OOF to a normal signal is greater than 1/2, a LOF will be declared. A LOS condition shall be declared when the Network Channel Terminating Equipment has determined that  $175 \pm 75$  successive pulse positions with no pulses of either positive or negative polarity have occurred. An OOF condition shall be declared when either Network equipment or Digital Terminal Equipment detects errors in the framing pattern.
  - 13.2.4.4.2.6.2. There shall be fewer than 1 SFE per month.
- 13.2.4.5. Service Availability and Reliability

Availability refers to the time period during which the service is up and usable for its intended purpose. Reliability refers to the probability that a task will be completed successfully, given that it is successfully begun.

13.2.4.5.1. Blocked Calls

13.2.4.5.1.1. Blocking is the fraction of call origination attempts denied service during a stated measurement period. Blocking occurs because of competition for limited resources within the network.

13.2.4.5.1.2. For intraLATA toll service as well as for local exchange service, the blocking level from originating network interface (NID) to terminating NID shall not exceed 1% in any hour, except under conditions of service disruption. For access to or egress from the AT&T long distance network, the blocking rate shall not exceed 0.5% in any hour, except under conditions of service disruption.

13.2.4.5.2. Blocked Dial Tone

13.2.4.5.2.1. Blocked dial tone occurs when the subscriber does not receive dial tone within 3 seconds of going off-hook.

13.2.4.5.2.2. Customers shall not experience more than 0.1% dial tone blocking during average busy season busy hour (ABSBH).

13.2.4.5.3. Downtime

Downtime is the period of time that a system is in a failed state.

13.2.4.5.3.1. The average downtime for all subscriber Loop(s) shall be less than 49 minutes per year. The maximum downtime for 99% of all subscriber Loop(s) shall be less than 74 minutes per year.

13.2.4.5.3.2. The average downtime for an end office switch shall be less than 3 minutes per year. The average downtime for individual trunks shall be less than 28 minutes per year. The average downtime for digital trunk groups shall be less than 20 minutes per year. The average downtime for an individual line appearance at the switch shall be less than 28 minutes per year. The average downtime for a Remote Terminal (RT) shall be less than 17 minutes per year. The average downtime for an individual line on a Remote Terminal (RT) shall be less than 13 minutes per year.

13.2.4.5.3.3. [Intentionally deleted.]

13.2.4.5.3.4. There shall be no downtime due to power failures at the switch.

13.2.4.5.3.5. The probability of a stable call being cut off shall be less than 20 cutoffs per one million 1 minute calls.

- 13.2.4.5.3.6. The rate of ineffective machine attempts at the end office shall be less than 0.0005 (5 failures per 10,000 call attempts).
- 13.2.4.5.3.7. GTE shall meet all references for private line services in TR-NWT-000335, ANSI T1.512-1994, and AT&T Technical References as listed in this Section 13.2.
- 13.2.4.5.4. Dial Tone Delay
- 13.2.4.5.4.1. Dial-Tone Delay is the time period between a customer off-hook and the receipt of dial tone from an originating end office. Dial-Tone Delay has a significant effect on customer opinion of service quality.
- 13.2.4.5.4.2. The average dial-tone delay shall not exceed 0.6 seconds. At most 0.5% of calls during the average-season busy hour (ABSBH) shall experience dial-tone delay greater than 3 seconds. At most 8% of calls during the ten-high-day busy hour (THDBH) shall experience dial-tone delay greater than 3 seconds. At most 10% of calls during the high-day busy hour (HDBH) shall experience dial-tone delay greater than 3 seconds.
- 13.2.4.5.5. Dial Tone Removal
- 13.2.4.5.5.1. Dial tone removal is the time between recognition of the first address digit to the removal of dial tone on the line.  
The maximum dial tone removal interval shall be  $\leq 500$  milliseconds.
- 13.2.4.5.6. Post Dial Delay
- 13.2.4.5.6.1. Post Dial Delay (PDD) is the amount of time a caller must wait after entering or dialing the last digit of a Destination Telephone Number (DTN) before hearing a valid audible network response. The PDD for an end user is measured from the time the caller has pressed or dialed the last digit of a DTN until receipt of an audible network response.
- 13.2.4.5.6.2. The references given reflect an end-to-end CCS7 protocol for AT&T end users. Where a mixture of CCS7 and inband (MF) signaling protocols are employed, an increase in the PDD can be expected.

- 13.2.4.5.6.2.1. PDD 1 - A - Intra AT&T LSO
- 13.2.4.5.6.2.1.1. Intra-LSO calls do not employ external signaling protocols. The PDD for intra-LSO calls flows are dependent upon the processor cycle time and traffic load conditions. This PDD is assumed to be between customers on the same AT&T LSO, between the Remote Switch Modules (RSMs) on the same Host, or between an RSM and 5ESS Host customers.
- 13.2.4.5.6.2.1.2. The objective for intra-LSO PDD is less than 310 milliseconds for 50% of all calls and less than 460 milliseconds for 95% of all calls.
- 13.2.4.5.6.2.2. PDD1 - B - AT&T LSO to Another AT&T Local LSO
- 13.2.4.5.6.2.2.1. The signaling protocols from an AT&T LSO to another AT&T LSO are assumed to employ out-of-band Common Channel Signaling System 7 (CCS7) format. Local calls, that is, calls from an AT&T LSO to another AT&T LSOs are assumed to have no more than one pair of Signaling Transfer Point Switches (STPSs) and no more than one data base dip.
- 13.2.4.5.6.2.2.2. This PDD is expected to be better than the AT&T Long Distance objective with an average PDD of  $\leq .870$  seconds with 95%  $\leq 1.34$  seconds.
- 13.2.4.5.6.2.3. PDD1 - C - AT&T LSO to Other LSO
- 13.2.4.5.6.2.3.1. Calls from an AT&T LSO to other LSOs are dependent upon the interface agreements between AT&T and the LSO service provider and may employ CCS7, inband (MF) or a combination of both protocols.
- 13.2.4.5.6.2.3.2. Calls from an AT&T LSO to another LSO via the Public Switched Telecommunications Network (PSTN), using end-to-end CCS7 signaling protocols, can expect to meet the AT&T PDD objectives of an average of 2.0 seconds with 95% in  $\leq 2.5$  seconds. Calls from an AT&T LSO via the PSTN to LSOs outside the local service area are assumed to use CCS7 signaling protocols to the AT&T #4ESS. The egress signaling protocols from the AT&T Switched Network (ASN) to the many different local telephone company service providers however does not necessarily utilize CCS7 signaling. There are three basic egress signaling configuration. They are:
  - 13.2.4.5.6.2.3.2.1. Network Inter-Connect, CCS7 between AT&T and the local telephone company.

- 13.2.4.5.6.2.3.2.2. Inband Multifrequency (MF) signaling protocols without a GTE egress tandem in the connection.
- 13.2.4.5.6.2.3.2.3. Inband MF signaling protocols with a GTE egress tandem in the connection.
- 13.2.4.6.3.2.3.2.3.1 Calls from an AT&T LSO to other LSOs outside the local service area are assumed to have multiple STPSs for 1+ traffic in the access and ASN portion of the connection. The egress from the ASN for 1+ traffic is again dependent upon the interface agreements in that service area and may consist of CCS7 or inband MF protocols.
- 13.2.4.6.3.2.3.2.3.2 Calls from an AT&T's LSO to another AT&T LSO with a mixture of CCS7 or all inband signaling protocols are expected to receive PDDs on the average of 2.9 seconds with 95% in  $\leq 6.5$  seconds.
- 13.2.4.5.6.2.4. PDD2 - AT&T LSO to Operator Services
- 13.2.4.5.6.2.4.1. The signaling protocols between an AT&T LSO and the AT&T ASN 5ESS® Operator Services Position Systems (OSPS) will employ IN-band Feature Group C Modified Operator Services Multifrequency signaling format. As with 1+ traffic, the egress from the ASN to the local service providers LSO is dependent upon the interface.
- 13.2.4.5.6.2.5. PDD2 - A - AT&T LSO to 5ESS® OSPS 0 Only
- 13.2.4.5.6.2.5.1. When a "0" has been entered by the customer, timing is applied in the absence of a DTMF "#". If a "#" is not entered, the objective is for the timer to expire in 4 seconds +/- 1 second. After the timer has expired, or the "#" has been entered, the average PDD shall not exceed 2.2 seconds.
- 13.2.4.5.6.2.6. PDD2 - B - 0 Plus Calls
- 13.2.4.5.6.2.6.1. On calls where analysis of the first 6 digits ( area code + central office code) is required, the PDD shall not exceed 2.0 seconds on the average, and 2.5 seconds in 95% of all occurrences. For calls that require analysis of the 10-digits CALLED number and the 7 digits of calling number (ANI, e.g. Automatic Charge Quotation Service) the PDD is expected to be 4.5 seconds on the average and < 5.0 seconds in 95% of all occurrences. These delays are based on the calling customer receiving a network response as described above, specifically the calling card alerting tone from the 5ESS® OSPS. The remaining call completion PDD to the DTN,

after the customer has completed the Operator Service function, will take the form of the PDDs discussed in PDD1-C.

13.2.4.5.6.2.7. Impact of Local Number Portability (LNP)

13.2.4.5.6.2.7.1. Local Number Portability will increase PDDs. If a call forwarding option is used as an interim solution for LNP, the delay due to additional switching in the local access is estimated to be 0.3 seconds (mean) and 0.4 seconds (95th percentile) in addition to the PDDs described earlier. These estimates assumes CCS7 signaling between LSOs. If inband signaling is used between LSOs, the PDD will be increased by 1.9 to 3.6 (1.7+1.9) seconds compared to the PDDs provided in the section on Post Dial Delay.

13.2.4.5.6.2.8. Custom Local Area Subscriber Services (CLASS)

13.2.4.5.6.2.8.1. CLASS<sup>sm</sup> features such as Calling Name Delivery can contribute to the PDD of a call. This delay is caused by the additional time (GTE option) before the ringing interval commences. This default delay is 3 seconds. Optional settings are available in 1 second intervals from 1 to 6 seconds. Calls to DTNs that have CLASS<sup>sm</sup> features, particularly with calling name delivery, can expect to experience from 1 to 6 seconds (3 seconds default) of additional PDD compared to the PDDs shown for PDD1-C.

13.2.4.5.6.2.9. Partial Dial Timing

13.2.4.5.6.2.9.1. The interval between each information digit from a customer's line, until the LSO or switching system has determined that the digit string is incomplete.

13.2.4.5.6.2.9.2. For customer lines, partial dial timing shall be  $\geq 16$  seconds and  $\leq 24$  seconds. For trunks, inband signaling time-out shall be  $\geq 5$  seconds and  $\leq 20$  seconds.

13.2.5. [Intentionally deleted.]

13.2.5.1. [Intentionally deleted.]

13.2.5.1.1. [Intentionally deleted.]

13.2.5.1.2. [Intentionally deleted]

**13.3. Protection, Restoration, and Disaster Recovery**

**13.3.1. Scope:**

This Section refers specifically to references on the use of redundant network equipment and facilities for protection, restoration, and disaster recovery.

**13.3.2. Technical References (subject to Section 23.19 of the General Terms and Conditions of this Agreement):**

**13.3.2.1.** GTE shall provide protection, restoration, and disaster recovery capabilities at parity with those capabilities provided for GTE's own services, facilities and equipment (e.g., equivalent circuit pack protection ratios, facility protection ratios).

**13.3.2.2.** GTE shall provide Network Elements and Ancillary Functions equal priority in protection, restoration, and disaster recovery as provided to GTE's own services, facilities and equipment.

**13.3.2.3.** GTE shall provide Network Elements and Ancillary Functions equal priority in the use of spare equipment and facilities as provided to GTE's own services, facilities and equipment.

**13.3.2.4.** Where AT&T designates an AT&T customer priority list, GTE shall restore Network Elements provided to AT&T, which have been identified by the Parties as serving the customers on the priority list, in accordance with AT&T's priority designation. AT&T will work jointly with GTE in identifying those Network Elements associated with the priority customer list.

**13.4. Synchronization**

**13.4.1. Definition:**

Synchronization is the function which keeps all digital equipment in a communications network operating at the same average frequency. With respect to digital transmission, information is coded into discrete pulses. When these pulses are transmitted through a digital communications network, all synchronous Network Elements are traceable to a stable and accurate timing source. Network synchronization is accomplished by timing all synchronous Network Elements in the network to a stratum 1 traceable timing source so that transmission from these network points have the same average line rate.



13.4.2. Technical References (subject to Section 23.19 of the General Terms and Conditions of this Agreement):

The following references are applicable to the case where GTE provides synchronization to equipment that AT&T owns and operates within a GTE location. In addition, these references apply to synchronous equipment that is owned by GTE and is used to provide a Network Element to AT&T.

13.4.2.1. The synchronization of clocks within digital networks is divided into two parts: intra-building and inter-building. Within a building, a single clock is designated as the Building Integrated Timing Supply (BITS), which provides all of the DS1 and DS0 synchronization references required by other clocks in such building. This is referred to as intra-building synchronization. The BITS receives synchronization references from remotely located BITS.

Synchronization of BITS between buildings is referred to as inter-building synchronization.

13.4.2.2. To implement a network synchronization plan, clocks within digital networks are divided into four stratum levels. All clocks in strata 2, 3, and 4 are synchronized to a stratum 1 clock, that is, they are traceable to a stratum 1 clock. A traceable reference is a reference that can be traced back through some number of clocks to a stratum 1 source. Clocks in different strata are distinguished by their free running accuracy or by their stability during trouble conditions such as the loss of all synchronization references.

13.4.2.2.1. Intra-Building

13.4.2.2.1.1. Within a building, there are different kinds of equipment that require synchronization at the DS1 and DS0 rates. Synchronization at the DS1 rate is accomplished by the frequency synchronizing presence of buffer stores at various DS1 transmission interfaces. Synchronization at the DS0 rate is accomplished by using a composite clock signal that phase synchronizes the clocks. Equipment requiring DS0 synchronization frequently does not have adequate buffer storage to accommodate the phase variations among different equipment. Control of phase variations to an acceptable level is accomplished by externally timing all interconnecting DS0 circuits to a single clock source and by limiting the interconnection of DS0 equipment to less than 1,500 cable feet. Therefore, a BITS shall provide DS1 and composite clock signals when appropriate. The composite signal is a 64-kHz 5/8<sup>th</sup> duty cycle, return to zero with a bipolar violation every eighth pulse (B8RZ).

13.4.2.2.2. Inter-Building

13.4.2.2.2.1. Subject to Section 23.19 of the General Terms and Conditions of this Agreement, GTE shall provide inter-building synchronization at the DS1 rate, and the BITS shall accept the primary and secondary synchronization links from BITS in other buildings. From hierarchical considerations, the BITS shall be the highest stratum clock within the building and GTE shall provide operations capabilities (this includes, but is not limited to: synchronization reference provisioning; synchronization reference status inquiries; timing mode status inquiries; and alarm conditions).

13.4.3. Synchronization Distribution References (subject to Section 23.19 of the General Terms and Conditions of this Agreement):

13.4.3.1. Central office BITS shall contain redundant clocks meeting or exceeding the references for a stratum 2 clock as specified in ANSI T1.101-1994 and Bellcore TR-NWT-001244 Clocks for the Synchronized Network: Common Generic Criteria.

13.4.3.2. Central office BITS shall be powered by primary and backup power sources to the extent GTE utilizes such backup power sources in GTE's own network.

13.4.3.3. If both reference inputs to the BITS are interrupted or in a degraded mode (meaning off frequency greater than twice the minimum accuracy of the BITS, loss of frame, excessive bit errors, or in Alarm Indication Signal), then the stratum clock in the BITS where Currently Available, shall provide the necessary bridge in timing to allow the network to operate without a frame repetition or deletion (slip free) with better performance than 1 frame repetition or deletion (slip) per week.

13.4.3.4. DS1s multiplexed into a SONET synchronous payload envelope within an STS-n (where n is defined in ANSI T1.105-1995) signal shall not be used as reference facilities for network synchronization.

13.4.3.5. The total number of Network Elements cascaded from the stratum 1 source shall be minimized in accordance with GTE's standards for such minimization.

13.4.3.6. To the extent that GTE provides such stratum level to itself, a Network Element shall receive the synchronization reference signal

only from another Network Element that contains a clock of equivalent or superior quality (stratum level).

- 13.4.3.7. [Intentionally deleted.]
- 13.4.3.8. Where possible, all primary and secondary synchronization facilities shall be physically diverse (this means the maximum available physical separation of synchronization equipment and cabling).
- 13.4.3.9. No timing loops shall be formed in any combination of primary and secondary facilities unless GTE utilizes such combinations in its network.
- 13.4.3.10. GTE shall continuously monitor the BITS for synchronization related failures or degradation to the extent GTE provides such monitoring to itself.
- 13.4.3.11. GTE shall continuously monitor all equipment transporting synchronization facilities for synchronization related failures or degradation to the extent GTE provides such monitoring to itself.
- 13.4.3.12. For non-SONET equipment, GTE shall provide synchronization facilities which, at a minimum, comply with the standards set forth in ANSI T1.101-1994.  
For SONET equipment, GTE shall provide synchronization facilities that have time deviation (TDEV) for integration times greater than 0.05 seconds and less than or equal to 10 seconds, that is less than or equal to 10 nanoseconds. TDEV, in nanoseconds, for integration times greater than 10 seconds and less than 1000 seconds, shall be less than 3.1623 times the square-root of the integration time. For example, for integration times of 25 seconds, TDEV shall be less than 15.8 nanoseconds.

## 13.5. **SS7 Network Interconnection**

- 13.5.1. Definition:  
SS7 Network Interconnection is the Interconnection of GTE Signal Transfer Points (STPs) with AT&T STPs or AT&T local or tandem switching systems, for the purpose of providing local exchange or exchange access services. This connectivity enables the exchange of SS7 messages between AT&T local or tandem switching systems and GTE's local or tandem switching systems, and between AT&T local or tandem switching systems and other third-party local or tandem switching systems with signaling

connectivity to the same STPs. This connectivity also enables the exchange of messages between AT&T local or tandem switching systems, and GTE call-related databases.

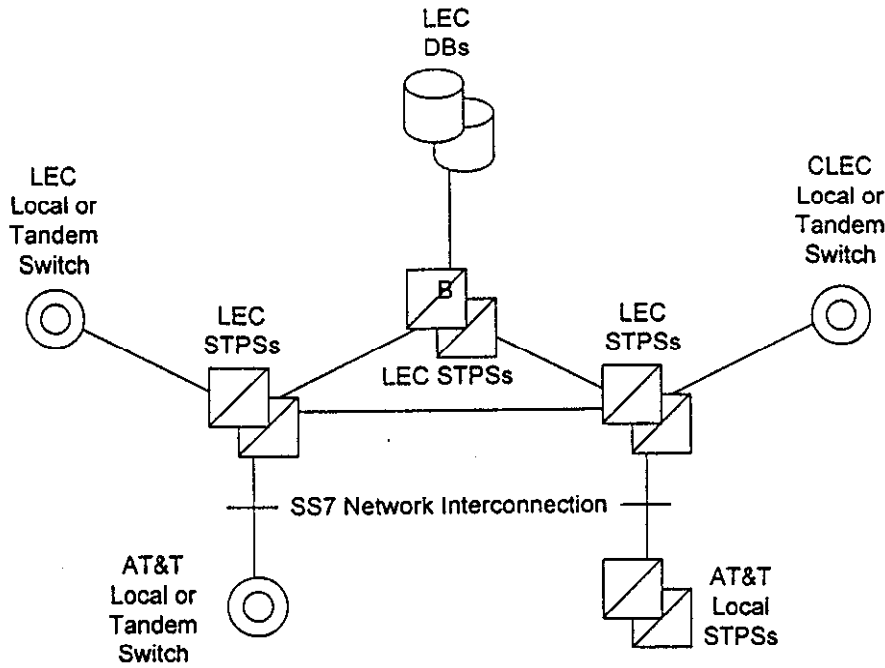


Figure 3. SS7 Network Interconnection

13.5.2. Technical References (subject to Section 23.19 of the General Terms and Conditions of this Agreement): GTE shall provide SS7 Network Interconnection at the same level of quality as GTE provides for such network interconnection in its own network. For example:

13.5.2.1. SS7 Network Interconnection provides connectivity to all components of the GTE SS7 network. These include:

13.5.2.1.1. GTE local or tandem switching systems;

13.5.2.1.2. GTE DBs; and

13.5.2.1.3. Other third-party local or tandem switching systems.

13.5.2.2. The connectivity provided by SS7 Network Interconnection fully supports the functions of GTE switching systems and DBs and AT&T or other third-party switching systems with A-link access to the GTE SS7 network.

- 13.5.2.3. In particular Figure 4 depicts a circumstance where SS7 Network Interconnection provides transport for certain types of Transaction Capabilities Application Part (TCAP) messages. If traffic is routed based on dialed or translated digits between an AT&T local switching system and a GTE or other third-party local switching system, either directly or via a GTE tandem switching system, then GTE SS7 network conveys via SS7 Network Interconnection the TCAP messages that are necessary to provide Call Management services (Automatic Callback, Automatic Recall, and Screening List Editing) between the AT&T local STPSs and the GTE or other third-party local switch.

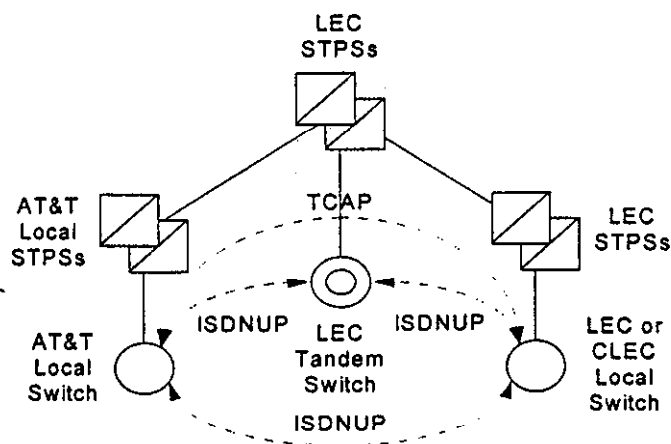


Figure 4. Interswitch TCAP Signaling for SS7 Network Interconnection

- 13.5.2.4. When the capability to route messages based on Intermediate Signaling Network Identifier (ISNI) is generally available on GTE STPSs, the GTE SS7 Network also conveys TCAP messages using SS7 Network Interconnection in similar circumstances where the GTE switch routes traffic based on a Carrier Identification Code (CIC).
- 13.5.2.5. SS7 Network Interconnection shall provide all functions of the MTP as specified in ANSI T1.111. This includes Signaling Data Link functions, as specified in ANSI T1.111.2; Signaling Link functions, as specified in ANSI T1.111.3; and Signaling Network Management functions, as specified in ANSI T1.111.4.

- 13.5.2.6. SS7 Network Interconnection shall provide all functions of the SCCP necessary for Class 0 (basic connectionless) service, as specified in ANSI T1.112 (Reference 13.5.2.5). In particular, this includes Global Title Translation (GTT) and SCCP Management procedures, as specified in T1.112.4. Where the destination signaling point is a GTE switching system or DB, or is another third-party local or tandem switching system directly connected to the GTE SS7 network, SS7 Network Interconnection shall include final GTT of messages to the destination and SCCP Subsystem Management of the destination. Where the destination signaling point is an AT&T local or tandem switching system, SS7 Network Interconnection shall include intermediate GTT of messages to a gateway pair of AT&T local STPSs, and shall not include SCCP Subsystem Management of the destination.
- 13.5.2.7. SS7 Network Interconnection shall provide all functions of the Integrated Services Digital Network User Part (ISDNUP), as specified in ANSI T1.113 (Reference 13.5.2.5).
- 13.5.2.8. SS7 Network Interconnection shall provide all functions of the TCAP, as specified in ANSI T1.114 (Reference 13.5.2.5).
- 13.5.2.9. If and when Internetwork MTP Routing Verification Test (MRVT) and SCCP Routing Verification Test (SRVT) become approved ANSI standards and available capabilities of GTE STPSs, SS7 Network Interconnection shall provide these functions of the OMAP.
- 13.5.3. Link Interface References (subject to Section 23.19 of the General Terms and Conditions of this Agreement):
- 13.5.3.1. GTE shall offer the following SS7 Network Interconnection options to connect AT&T or AT&T-designated local or tandem switching systems or STPSs to the GTE SS7 network:
- 13.5.3.1.1. A-link interface from AT&T local or tandem switching systems; and
- 13.5.3.1.2. D-link interface from AT&T STPSs.
- 13.5.3.2. Subject to Section 23.19 of the General Terms and Conditions of this Agreement, each interface shall be provided by one or more sets (layers) of signaling links, as follows:

13.5.3.2.1. An A-link layer shall consist of two links, as depicted in Figure 5.

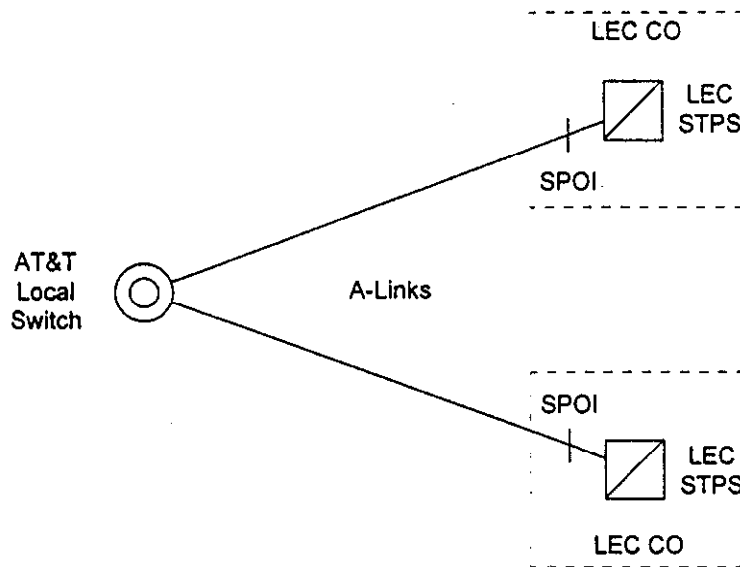


Figure 5. A-Link Interface

13.5.3.2.2. A D-link layer shall consist of four links, as depicted in Figure 6.

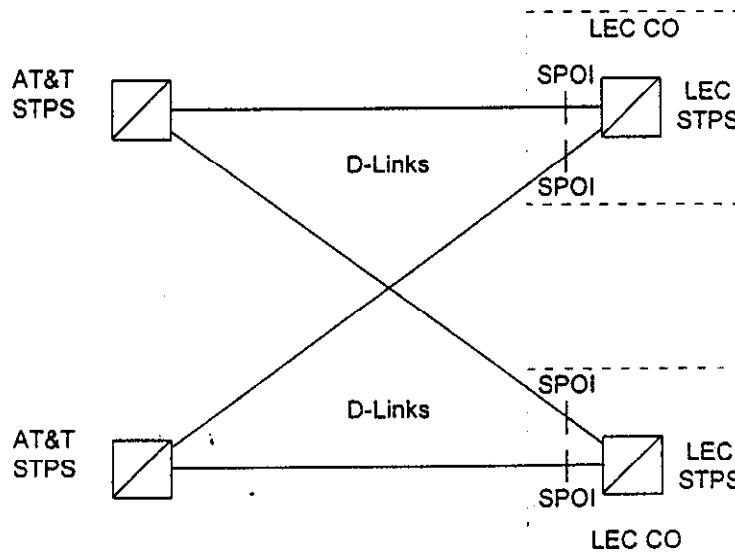


Figure 6. D-Link Interface

- 13.5.3.3. The Signaling Point of Interconnection (SPOI) for each link shall be located at a cross-connect element, (e.g., a DCS, DSX-1, etc.), in the Central Office (CO) where the GTE STPs are located. There shall be a 56kbps or higher rate transport interface at each of the SPOIs located in a GTE CO. Each signaling link shall appear as a DS0 channel within the DS1 or higher rate interface. GTE shall offer higher rate DS1 signaling links for interconnecting AT&T local switching systems or STPs with GTE STPs as soon as these become approved ANSI standards and available capabilities of GTE STPs.
- 13.5.3.4. To the extent GTE provides such capability to itself, its Affiliates or its subsidiaries in the particular GTE office, GTE shall provide intraoffice diversity between the SPOIs and the GTE STPs in that office, so that no single failure of intraoffice facilities or equipment shall cause the failure of both D-links in a layer connecting to a GTE STP.
- 13.5.3.5. The protocol interfaces for SS7 Network Interconnection include the MTP, ISDNUP, SCCP, and TCAP. These protocol interfaces shall, subject to Section 23.19 of the General Terms and Conditions of this Agreement, conform to the specifications contained in the technical references listed in Appendix A to this Attachment 2, under paragraph 14.
- 13.5.3.6. SS7 Network Interconnection shall be provided to AT&T in accordance with the technical references listed in Appendix A to this Attachment 2, under paragraph 15.

**14. Unused Transmission Media**

**14.1. Definitions:**

- 14.1.1. Unused Transmission Media is physical inter-office transmission media (e.g., optical fiber, from an LGX in one central office to another LGX in another central office, copper twisted pairs from the MDF of one central office to the MDF in another central office, coaxial cable) which has no lightwave or electronic transmission equipment terminated to such media to operationalize its transmission capabilities. This media may exist in aerial or underground structure or within a building.
- 14.1.2. Dark Fiber, one type of unused transmission media, is unused strands of optical fiber. Dark Fiber also includes strands of optical fiber existing in aerial or underground structure which



have lightwave repeater (regenerator or optical amplifier) equipment interspliced to it at appropriate distances, but which has no line terminating elements terminated to such strands to operationalize its transmission capabilities.

14.1.3. GTE is not responsible for the end-to-end performance in those applications where AT&T is utilizing unused transmission media.

14.2. Requirements

14.2.1. GTE shall make available, for lease by AT&T, its dark fiber in the feeder segment of GTE's loops and, when AT&T has collocation space in a GTE tandem or end office, in the dedicated interoffice transport segment of GTE's network, subject to the conditions and requirements set forth in sections 14.2.2 through 14.3.2.

14.2.1.1. AT&T will bear the cost of extending dark fiber in the feeder segment of GTE's network to AT&T end-user premises or AT&T's facility access locations within the loop access network.

14.2.2. GTE shall provide a Single Point of Contact (SPOC) for negotiating all Unused Transmission Media lease agreements.

14.2.3. AT&T may test the quality of the Unused Transmission Media to confirm its usability and performance specifications. AT&T may only test from its point of physical collocation, AT&T's end-user premises or AT&T's facility access locations at which AT&T has access to such unused Transmission Media. For virtual collocation applications, GTE will perform test(s) on the dark fiber as requested by AT&T and provide the results of the test(s) to AT&T, at AT&T's expense. Should such test results not meet AT&T specifications, GTE will only be obligated to perform those maintenance activities it would have performed for itself.

14.2.4. Upon receipt of a bona fide request, GTE shall provide to AT&T information regarding the location, availability of Unused Transmission Media within twenty (20) business days after receiving a request for a specific location from AT&T.

14.2.5. GTE shall make Unused Transmission Media available to AT&T within twenty (20) business days after it receives written confirmation from AT&T that the Unused Transmission Media

previously deemed available by GTE is wanted for use by AT&T at the price established by the Commission. If a written confirmation is not received from AT&T within thirty (30) business days after verification of availability, GTE may make such Unused Transmission Media available for its own use or, may make it available to another requesting party.

**14.2.6.** In leasing loop feeder dark fiber and dedicated interoffice dark fiber to AT&T, GTE will allocate its dark fiber capacity among requesting CLECs on a first-come, first-served basis and in a competitively neutral manner. GTE lease agreements for such fiber may provide that they are revocable upon twelve months' notice by GTE, provided that, in order to exercise its right of revocation, GTE must demonstrate that the subject fiber is needed to meet GTE's bandwidth requirements or the bandwidth requirements of another LSP. In addition, if GTE can demonstrate within a twelve month period after the date of a dark fiber lease that AT&T is using the leased capacity at a transmission level less than OC-12 (622.08 million bits per second), GTE may revoke the lease agreement. Whenever GTE revokes a dark fiber lease agreement under this section 14.2.6, it will provide AT&T a reasonable and sufficient alternative means of transporting the traffic.

**14.2.7.** GTE is not required to make available for lease by AT&T more than twenty-five percent (25%) of its Unused Transmission Media or dark fiber capacity in a particular feeder or dedicated interoffice transport segment.

**14.3. Requirements Specific to Dark Fiber**

**14.3.1.** AT&T will provide sufficient fiber cable from their LGX located in their physical collocation space to allow GTE personnel to terminate the GTE LGX. Where AT&T is obtaining access to dark fiber through virtual collocation, AT&T will provide the appropriate electronic equipment to terminate the fiber and GTE will provide the cross connection of the fiber to AT&T's equipment at AT&T's expense.

**14.3.2.** In those applications where AT&T requests optical regenerators, such regeneration will be provided by GTE on a case by case basis with additional costs to be borne by AT&T. However, in all events, AT&T may provide its own optical regenerators within AT&T's physical/virtual collocation space.

**[ Unused Transmission Media ]**

## APPENDIX A

### Introduction

To the extent sections contained in this Appendix set forth technical references, technical standards, technical requirements, and/or performance standards, GTE's obligation to comply with such references, requirements, and/or standards shall be subject to Section 23.19 of the General Terms and Conditions of this Agreement.

1. The Network Interface Device (NID) shall be provided to AT&T in accordance with the following technical references:
  - 1.1 Bellcore Technical Advisory TA-TSY-000120 "Customer Premises or Network Ground Wire";
  - 1.2 Bellcore Generic Requirement GR-49-CORE "Generic Requirements for Outdoor Telephone Network Interface Devices";
  - 1.3 Bellcore Technical Requirement TR-NWT-00239 "Indoor Telephone Network Interfaces";
  - 1.4 Bellcore Technical Requirement TR-NWT-000937 "Generic Requirements for Outdoor and Indoor Building Entrance"; and,
  - 1.5 Bellcore Technical Requirement TR-NWT-000133 "Generic Requirements for Network Inside Wiring."
2. The Loop shall be equal to or better than each of the applicable interface references set forth in the following technical references:
  - 2.1 Bellcore TR-NWT-000049, "Generic Requirements for Outdoor Telephone Network Interface Devices," Issued December 1, 1994;
  - 2.2 Bellcore TR-NWT-000057, "Functional Criteria for Digital Loop Carrier Systems," Issued January 2, 1993;
  - 2.3 Bellcore TR-NWT-000393, "Generic Requirements for ISDN Basic Access Digital Subscriber Lines";

- 2.4 Bellcore TR-NWT-000253, SONET Transport Systems: Common Criteria (A module of TSGR, FR-NWT-000440), Issue 2, December 1991;
- 2.5 AT&T Data Communications Technical Reference TR 62310, DS0 Digital Local Channel Description and Interface Specification, August 1993; Also Addendum 1 and Addendum 2; and
- 2.6 AT&T Technical Reference TR 62411, ACCUNET T1.5 Service Description and Interface Specification, December 1990; Addendum 1, March 1991; Addendum 2, October 1992.
- 2.7 AT&T Technical Reference TR 62421, ACCUNET Spectrum of Digital Services Description and Interface Specification, December 1989; Also TR 62421A Addendum 2, November 1992.
- 2.8 ANSI T1.106 - 1988, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (Single Mode).
- 2.9 ANSI T1.105 - 1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats.
- 2.10 ANSI T1.102 - 1993, American National Standard for Telecommunications - Digital Hierarchy - Electrical Interfaces.
- 2.11 ANSI T1.403- 1989, American National Standard for Telecommunications - Carrier to Customer Installation, DS1 Metallic Interface Specification
- 2.12 Bellcore GR-253-CORE, Synchronous Optical Network Systems (SONET), Common Generic Criteria.
- 2.13 AT&T Technical Reference TR 54014, ACCUNET T45 Reserved Services - Service Description and Interface Specification, May 1992.
- 2.14 AT&T Technical Reference TR 54018, ACCUNET T155 Service Description and Interface Specification.
- 2.15 Bellcore TR-TSY-000008, Digital Interface Between the SLC 96 Digital Loop Carrier System and a Local Digital Switch, Issue 2, August 1987.

- 2.16 Bellcore TR-NWT-000303, Integrated Digital Loop Carrier System Generic Requirements, Objectives and Interface, Issue 2, December 1992; Rev.1, December 1993; Supplement 1, December 1993.
- 2.17 Bellcore TR-TSY-000673, Operations Systems Interface for an IDLC System, (LSSGR) FSD 20-02-2100, Issue 1, September 1989.
- 2.18 AT&T Technical Reference TR-62415 "Access Specifications for High Capacity DS1/DS3 Dedicated Digital Service";
- 2.19 Bellcore Technical Requirement TR-NWT-000499, Issue 5, December 1993, section 7 for DS1 interfaces.
- 3. Local Switching shall be equal to or better than the references for Local Switching set forth in Bellcore's Local Switching Systems General Requirements (FR-NWT-000064) and shall be offered in accordance with the following technical references:
  - 3.1 GR-1298-CORE, AIN Switching System Generic Requirements;
  - 3.2 GR-1299-CORE, AIN Switch-Service Control Point (SCP)/Adjunct Interface Generic Requirements;
  - 3.3 TR-NWT-001284, AIN 0.1 Switching System Generic Requirements;
  - 3.4 SR-NWT-002247, AIN Release 1 Update.
- 4. Interface to Loop References:
  - 4.1 Basic Rate Interface ISDN adhering to ANSI standards Q.931, Q.932 and appropriate Bellcore Technical Requirements;
  - 4.2 Primary Rate ISDN to PBX adhering to ANSI standards Q.931, Q.932 and appropriate Bellcore Technical Requirements;
  - 4.3 Loops adhering to Bellcore TR-NWT-08 and TR-NWT-303 specifications to interconnect Digital Loop Carriers.
- 5. Interface to Loop for ISDN References

- 5.1 GTE shall provide the BRI U interface using 2 wire copper loops in accordance with TR-NWT-000393, January 1991, Generic Requirements for ISDN Basic Access Digital Subscriber Lines.
- 5.2 GTE shall provide the BRI interface using Digital Subscriber Loops adhering to Bellcore TR-NWT-303 specifications to interconnect Digital Loop Carriers.
- 5.3 GTE shall offer PSD interfaces adhering to the X.25, S.75 and S.75' ANSI and Bellcore requirements.
- 6. At a minimum, Common Transport shall be provided to AT&T in accordance with the following technical references (as applicable for the transport technology being used):
  - 6.1 ANSI T1.101-1994, American National Standard for Telecommunications - Synchronization Interface Standard Performance and Availability;
  - 6.2 ANSI T1.102-1993, American National Standard for Telecommunications - Digital Hierarchy - Electrical Interfaces;
  - 6.3 ANSI T1.102.01-199x, American National Standard for Telecommunications - Digital Hierarchy - VT1.5;
  - 6.4 ANSI T1.105-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats;
  - 6.5 ANSI T1.105.01-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Automatic Protection Switching;
  - 6.6 ANSI T1.105.02-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Payload Mappings;
  - 6.7 ANSI T1.105.03-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Jitter at Network Interfaces;
  - 6.8 ANSI T1.105.03a-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET): Jitter at Network Interfaces - DS1 Supplement;

- 6.9 ANSI T1.105.05-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Tandem Connection;
- 6.10 ANSI T1.105.06-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Physical Layer Specifications;
- 6.11 ANSI T1.105.07-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Sub STS-1 Interface Rates and Formats;
- 6.12 ANSI T1.105.09-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Network Element Timing and Synchronization;
- 6.13 ANSI T1.106-1988, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (Single Mode);
- 6.14 ANSI T1.107-1988, American National Standard for Telecommunications - Digital Hierarchy - Formats Specifications;
- 6.15 ANSI T1.107a-1990 - American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications (DS3 Format Applications);
- 6.16 ANSI T1.107b-1991 - American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications;
- 6.17 ANSI T1.117-1991, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (SONET) (Single Mode - Short Reach);
- 6.18 ITU Recommendation G.707, Network node interface for the synchronous digital hierarchy (SDH);
- 6.19 ITU Recommendation G.704, Synchronous frame structures used at 1544, 6312, 2048, 8488 and 44736 kbit/s hierarchical levels;
- 6.20 Bellcore FR-440 and TR-NWT-000499, Transport Systems Generic Requirements (TSGR): Common Requirements;
- 6.21 Bellcore GR-820-CORE, Generic Transmission Surveillance: DS1 & DS3 Performance;

- 6.22 Bellcore GR-253-CORE, Synchronous Optical Network Systems (SONET); Common Generic Criteria;
- 6.23 Bellcore TR-NWT 000507, Transmission, Section 7, Issue 5 (Bellcore, December 1993). (A module of LSSGR, FR-NWT-000064.);
- 6.24 Bellcore TR-INS-000342, High-Capacity Digital Special Access Service-Transmission Parameter Limits and Interface Combinations, Issue 1 February 1991;
- 6.25 Bellcore ST-TEC 000052, Telecommunications Transmission Engineering Textbook, Volume 2: Facilities, Third Edition, Issue I May 1989;
- 6.26 Bellcore ST-TEC-000051, Telecommunications Transmission Engineering Textbook Volume 1: Principles, Third Edition. Issue 1 August 1987;
- 7. At a minimum, Dedicated Transport shall be provided to AT&T in accordance with the following technical references:
  - 7.1 ANSI T1.105.04-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Data Communication Channel Protocols and Architectures;
  - 7.2 ANSI T1.119-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Operations, Administration, Maintenance, and Provisioning (OAM&P) Communications;
  - 7.3 ANSI T1.119.01-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Operations, Administration, Maintenance, and Provisioning (OAM&P) Communications Protection Switching Fragment;
  - 7.4 ANSI T1.119.02-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Operations, Administration, Maintenance, and Provisioning (OAM&P) Communications Performance Monitoring Fragment;
  - 7.5 ANSI T1.231-1993 -American National Standard for Telecommunications - Digital Hierarchy - Layer 1 In-Service Digital Transmission performance monitoring.



- 7.6 AT&T Technical Reference TR 54016, Requirements For Interfacing Digital Terminal Equipment To Services Employing The Extended Superframe Format, September 1989;
- 7.7 AT&T Technical Reference TR 62421 ACCUNET Spectrum of Digital Services Description And Interface Specification, December 1989 and all addenda;
- 7.8 AT&T Technical Reference TR 62310, DS0 Digital Local Channel Description And Interface Specification, August 1993 and all addenda; and
- 7.9 AT&T Technical Reference TR 62415, Access Specification For High Capacity (DS1/DS3) Dedicated Digital Service, June 1989 and all addenda.
- 8. Digital Cross-Connect System (DCS) shall be provided to AT&T in accordance with the following technical references:
  - 8.1 AT&T Technical Reference TR 62421 ACCUNET® Spectrum of Digital Services Description And Interface Specification, December 1989 and TR 62421A Addendum 2, November 1992;
  - 8.2 AT&T Data Communications Technical Reference TR 62310 DS0 Digital Local Channel Description and Interface Specification, August 1993, and all addenda;
  - 8.3 AT&T Technical Reference TR 62415 Access Specification For High Capacity (DS1/DS3) Dedicated Digital Service, June 1989, and all addenda including TR 62415A3 July, 1992;
  - 8.4 AT&T Technical Reference TR 62411 ACCUNET® T1.5 Service Description And Interface Specification, December 1990 and all addenda including Addendum 2, October 1992;
  - 8.5 AT&T Technical Reference TR 54014 ACCUNET® T45 and T45 Reserved Services - Service Description And Interface Specification;
  - 8.6 AT&T Technical Reference TR 54018 OC-3 Optical Interface Specifications, November 1991;
  - 8.7 AT&T Technical Reference TR 54016 Requirements For Interfacing Digital Terminal Equipment To Services Employing The Extended Superframe Format, September 1989;

- 8.8 ANSI T1.102-1993, American National Standard for Telecommunications - Digital Hierarchy - Electrical Interfaces;
- 8.9 ANSI T1.102.01-199x, American National Standard for Telecommunications - Digital Hierarchy - VT1.5;
- 8.10 ANSI T1.105-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Basic Description including Multiplex Structure, Rates and Formats;
- 8.11 ANSI T1.105.03-1994, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Jitter at Network Interfaces;
- 8.12 ANSI T1.105.03a-1995, American National Standard for Telecommunications - Synchronous Optical Network (SONET): Jitter at Network Interfaces - DS1 Supplement;
- 8.13 ANSI T1.105.06-199x, American National Standard for Telecommunications - Synchronous Optical Network (SONET) - Physical Layer Specifications;
- 8.14 ANSI T1.106-1988, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (Single Mode);
- 8.15 ANSI T1.107-1988, American National Standard for Telecommunications - Digital Hierarchy - Formats Specifications;
- 8.16 ANSI T1.107a-1990 - American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications (DS3 Format Applications);
- 8.17 ANSI T1.107b-1991 - American National Standard for Telecommunications - Digital Hierarchy - Supplement to Formats Specifications;
- 8.18 ANSI T1.117-1991, American National Standard for Telecommunications - Digital Hierarchy - Optical Interface Specifications (SONET) (Single Mode - Short Reach);
- 8.19 ANSI T1.403-1989, Carrier to Customer Installation, DS1 Metallic Interface Specification;
- 8.20 ANSI T1.404-1994, Network-to-Customer Installation - DS3 Metallic Interface Specification;

- 8.21 ITU Recommendation G.707, Network node interface for the synchronous digital hierarchy (SDH);
  - 8.22 ITU Recommendation G.704, Synchronous frame structures used at 1544, 6312, 2048, 8488 and 44736 kbit/s hierarchical levels;
  - 8.23 FR-440 and TR-NWT-000499, Transport Systems Generic Requirements (TSGR): Common Requirements;
  - 8.24 GR-820-CORE, Generic Transmission Surveillance: DS1 & DS3 Performance;
  - 8.25 GR-253-CORE, Synchronous Optical Network Systems (SONET); Common Generic Criteria; and
  - 8.26 TR-NWT-000776, Network Interface Description for ISDN Customer Access.
9. Signaling Transfer Points (STPs) shall be provided to AT&T in accordance with the following technical references:
- 9.1 ANSI T1.111-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP);
  - 9.2 ANSI T1.111A-1994 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP) Supplement;
  - 9.3 ANSI T1.112-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Signaling Connection Control Part (SCCP);
  - 9.4 ANSI T1.115-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Monitoring and Measurements for Networks;
  - 9.5 ANSI T1.116-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Operations, Maintenance and Administration Part (OMAP);
  - 9.6 ANSI T1.118-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Intermediate Signaling Network Identification (ISNI);

- 9.7 Bellcore GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP); and
- 9.8 Bellcore GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP).
- 10. SCPs/Databases shall be equal to or better than all of the references for SCPs/Databases set forth in the following technical references:
  - 10.1 GR-246-CORE, Bell Communications Research Specification of Signaling System Number 7, ISSUE 1 (Bellcore, December 1995);
  - 10.2 GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP). (Bellcore, March 1994);
  - 10.3 GR-954-CORE, CCS Network Interface Specification (CCSNIS) Supporting Line Information Database (LIDB) Service 6, Issue 1, Rev. 1 (Bellcore, October 1995);
  - 10.4 GR-1149-CORE, OSSGR Section 10: System Interfaces, Issue 1 (Bellcore, October 1995) (Replaces TR-NWT-001149);
  - 10.5 GR-1158-CORE, OSSGR Section 22.3: Line Information Database 6, Issue (Bellcore, October 1995)
  - 10.6 GR-1428-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll Free Service (Bellcore, May 1995); and
  - 10.7 BOC Notes on the RLEC Networks, SR-TSV-002275, ISSUE 2, (Bellcore, April 1994).
- 11. Signaling Transfer Points (STPs) shall offer SS7 AIN Access in accordance with the references of the following technical references:
  - 11.1 GR-2863-CORE, CCS Network Interface Specification Supporting Advanced Intelligent Network (AIN);

- 11.2 GR-2902-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll-Free Service Using Advanced Intelligent Network (AIN).
- 12. Tandem Switching shall meet or exceed the following technical references:
  - 12.1 Bell Communications Research TR-TSY-000540 issue 2R2, Tandem Supplement, 6/1/90.
  - 12.2 GR-905-CORE covering CCSNIS;
  - 12.3 GR-1429-CORE for call management features; and GR-2863-CORE and GR-2902-CORE covering CCS AIN interconnection.
- 13. GTE performance under Section 13 of Attachment 2 shall meet or exceed the performance standards and references set forth in the technical references listed below;
  - 13.1 Bell Communications Research, Inc. Documents
    - 13.1.1 FR-64, LATA Switching Systems Generic Requirements (LSSGR). This document contains 117 Technical References and Generic Requirements. Sections provide the requirements for local switching systems (also referred to as end offices) that serve customers' lines. Some modules of the LSSGR are also referenced separately in this document.
    - 13.1.2 TR-NWT-000499, Issue 5, Rev 1, April 1992, Transport Systems Generic Requirements (TSGR): Common Requirements.
    - 13.1.3 TR-NWT-000418, Issue 2, December 1992, Generic Reliability Assurance Requirements For Fiber Optic Transport Systems.
    - 13.1.4 TR-NWT-000057, Issue 2, January 1993, Functional Criteria for Digital Loop Carriers Systems.
    - 13.1.5 TR-NWT-000507, Issue 5, December 1993, LSSGR - Transmission, Section 7.
    - 13.1.6 GR-303-CORE, Issue 1, September 1995, Integrated Digital Loop Carrier System Generic Requirements, Objectives, and Interface.

- 13.1.7 GR-334-CORE, Issue 1, June 1994, Switched Access Service: Transmission Parameter Limits and Interface Combinations.
- 13.1.8 TR-NWT-000335, Issue 3, May 1993, Voice Grade Special Access Services - Transmission Parameter Limits and Interface Combinations.
- 13.1.9 TR-TSY-000529, Issue 2, July 1987, Public Safety - LSSGR.
- 13.1.10 GR-1158-CORE, Issue 2, October 1995, OSSGR Section 22.3: Line Information Database.
- 13.1.11 TR-TSY-000511, Issue 2, July 1987, Service Standards, a Module (Section 11) of LATA Switching Systems Generic Requirements (LSSGR, FR-NWT-000064).
- 13.1.12 TR-NWT-000393, January 1991, Generic Requirements for ISDN Basic Access Digital Subscriber Lines.
- 13.1.13 TR-NWT-000909, December 1991, Generic Requirements and Objectives for Fiber In The Loop Systems.
- 13.1.14 TR-NWT-000505, Issue 3, May 1991, LSSGR Section 5, Call Processing.
- 13.1.15 FR-NWT-000271, 1993, Operator Services Systems Generic Requirements (OSSGR).
- 13.1.16 TR-NWT-001156, Issue 2, July 1993, OSSGR Operator Services Systems Generic Requirements, Section 21, Operator Subsystem.
- 13.1.17 SR-TSY-001171, Issue 1, January 1989, Methods and Procedures for System Reliability Analysis.
- 13.1.18 Bellcore Telecommunications Transmission Engineering, 3rd Ed, 1990.
- 13.2 ANSI Standards
  - 13.2.1 ANSI T1.512-1994, Network Performance - Point-to-Point Voice-Grade Special Access Network Voiceband Data Transmission Objectives.
  - 13.2.2 ANSI T1.506-1990, Network Performance - Transmission Specifications for Switched Exchange Access Network.

- 13.2.3 ANSI T1.508-1992, Telecommunications - Network Performance - Loss Plan for Evolving Digital Networks. Also supplement T1.508a-1993.
- 13.2.4 ANSI T1.101-1994, Digital Synchronization Network Plan.
- 13.3 TIA/EIA Standards
  - 13.3.1 Requirements not specifically addressed here shall be found in the documents listed in Electronic Industries Association/Telecommunications Industries Association Standards and Engineering Publications.
  - 13.3.2 TIA/EIA TSB-37A, Telephone Network Transmission Model for Evaluating Modem Performance.
  - 13.3.3 TIA/EIA TSB-38, Test Procedure for Evaluation of 2-wire 4 kHz Voiceband Duplex Modems.
- 13.4 IEEE Standards
  - 13.4.1 IEEE Standard 743-1984, IEEE Standard Methods and Equipment for Measuring Transmission Characteristics of Analog Voice Frequency Circuits.
  - 13.4.2 ANSI/IEEE Standard 820-1984, Telephone Loop Performance Characteristics.
- 13.5 AT&T Standards
  - 13.5.1 Outside Plant Engineering Handbook, August 1994.
  - 13.5.2 AT&T Pub. 60220, Issue 1, April 1991, 5ESS OSPS Interface Technical Specification for Domestic Toll And Assistance Applications.
  - 13.5.3 AT&T Technical Reference TR 43202, May 1985, AT&T Analog Voice Total and Coordinated Services.
  - 13.5.4 AT&T Technical Reference TR 41458, April 1990, Special Access Connection to the AT&T Network.
  - 13.5.5 AT&T Technical Reference TR 62415, June 1989, Access Specification For High Capacity (DS1/DS3) Dedicated Digital Service. Also TR 62415A2 November 1990, and TR 62415A3 July 1992 which are addenda to TR 62415.

- 13.5.6 AT&T Technical Reference TR 54016, September 1989, Requirements For Interfacing Digital Terminal Equipment To Services Employing The Extended Superframe Format.
- 13.5.7 AT&T Technical Reference TR 62411, December 1990, ACCUNET T1.5 Service Description And Interface Specification. Also Addendum 1 March 1991 and Addendum 2 October 1992.
- 13.5.8 AT&T Technical Reference TR 62421, December 1989, ACCUNET Spectrum of Digital Services Description And Interface Specification. Also TR 62421A Addendum 2 November 1992.
- 13.5.9 AT&T Data Communications Technical Reference TR 62310, August 1993, DS0 Digital Local Channel Description And Interface Specification. Also Addendum 2 November 1992.
- 13.5.10 AT&T Technical Reference TR 54014, 1992, ACCUNET T45 and T45 Reserved Services - Service Description And Interface Specification.
- 13.5.11 AT&T Technical Reference TR 54018, most current issue, ACCUNET T155 Service Description And Interface Specification.
- 14. The protocol interface references for SS7 Network Interconnection include the MTP, ISDNUP, SCCP, and TCAP. These protocol interfaces shall conform to the following specifications:
  - 14.1 Bellcore GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP);
  - 14.2 Bellcore GR-1428-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll Free Service;
  - 14.3 Bellcore GR-1429-CORE, CCS Network Interface Specification (CCSNIS) Supporting Call Management Services; and
  - 14.4 Bellcore GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP).
  - 14.5 GTE shall set message screening parameters to block accept messages from AT&T local or tandem switching systems destined



to any signaling point in the GTE SS7 network with which the AT&T switching system has a legitimate signaling relation.

15. SS7 Network Interconnection shall be provided to AT&T in accordance with the following technical references:
  - 15.1 ANSI T1.110-1992 American National Standard Telecommunications - Signaling System Number 7 (SS7) - General Information;
  - 15.2 ANSI T1.111-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP);
  - 15.3 ANSI T1.111A-1994 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Message Transfer Part (MTP) Supplement;
  - 15.4 ANSI T1.112-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Signaling Connection Control Part (SCCP);
  - 15.5 ANSI T1.113-1995 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Integrated Services Digital Network (ISDN) User Part;
  - 15.6 ANSI T1.114-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Transaction Capabilities Application Part (TCAP);
  - 15.7 ANSI T1.115-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Monitoring and Measurements for Networks;
  - 15.8 ANSI T1.116-1990 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Operations, Maintenance and Administration Part (OMAP);
  - 15.9 ANSI T1.118-1992 American National Standard for Telecommunications - Signaling System Number 7 (SS7) - Intermediate Signaling Network Identification (ISNI);
  - 15.10 Bellcore GR-905-CORE, Common Channel Signaling Network Interface Specification (CCSNIS) Supporting Network

Interconnection, Message Transfer Part (MTP), and Integrated Services Digital Network User Part (ISDNUP);

- 15.11 Bellcore GR-954-CORE, CCS Network Interface Specification (CCSNIS) Supporting Line Information Database (LIDB) Service;
- 15.12 Bellcore GR-1428-CORE, CCS Network Interface Specification (CCSNIS) Supporting Toll Free Service;
- 15.13 Bellcore GR-1429-CORE, CCS Network Interface Specification (CCSNIS) Supporting Call Management Services; and,
- 15.14 Bellcore GR-1432-CORE, CCS Network Interface Specification (CCSNIS) Supporting Signaling Connection Control Part (SCCP) and Transaction Capabilities Application Part (TCAP).

ATTACHMENT 3SERVICE DESCRIPTION: ANCILLARY FUNCTIONSTABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
SERVICE DESCRIPTION: ANCILLARY FUNCTIONS.....	1
1. Introduction.....	1
2. Collocation.....	1
3. Poles, Ducts, Conduits, Rights of Way (ROW).....	9

## SERVICE DESCRIPTION: ANCILLARY FUNCTIONS

### 1. Introduction

This Attachment sets forth the descriptions and requirements for Ancillary Functions that GTE agrees to offer to AT&T under this Agreement. To the extent sections contained in this Appendix set forth technical references, technical standards, technical requirements, and/or performance standards, GTE's obligation to comply with such references, requirements, and/or standards shall be subject to Section 23.19 of the General Terms and Conditions of this Agreement.

### 2. Collocation

2.1 Definition: Collocation is the right of AT&T to obtain dedicated space in GTE's Local Serving Office (LSO) or other GTE locations and to place equipment in such spaces to interconnect with the GTE network or obtain access to unbundled network elements. Collocation also includes GTE providing resources necessary for the operation and economical use of collocated equipment.

2.1.1 Terms: Collocation shall be provided in accordance with this Agreement as supplemented by the applicable GTE federal and state collocation tariffs in effect as of the effective date of this Agreement. To the extent any matter relating to collocation is not already addressed in the terms of the Agreement, the terms of the tariffs will control.

#### 2.2 Technical References

2.2.1 Upon request by AT&T, GTE shall provide space, as required by 47 CFR § 51.323 and as requested by AT&T, to meet AT&T's needs for placement of equipment, interconnection, or provision of services. Such space shall be provided in GTE's proposed central offices, serving wire center and tandem switches and at controlled environmental vaults, huts and cabinets. GTE will provide collocation as follows: physical collocation will be provided on a first-come, first-served basis, provided there is space available for collocation and provided there are reasonable security arrangements. If GTE determines that space is not available GTE shall provide virtual collocation for AT&T equipment, unless GTE demonstrates that virtual collocation is not available under currently Applicable Law. GTE and AT&T shall adhere to reasonable industry standard security measures, applied on a non-discriminatory basis.

- 2.2.1.1 AT&T will be allowed to designate or reserve space for its own use when it can produce specific detailed plans for the use of the space. GTE's right to reserve space or deny access to AT&T shall be considered on a case-by-case basis. It will be the burden of GTE to justify its actions with respect to any such reservation or denial. AT&T will pay for such space in accordance with the pricing terms of Attachment 14 and future order of the Commission. \_
- 2.2.1.2 GTE is not required to construct additional space when none is available to meet a physical collocation request. However, in determining whether space is available to meet a request for physical collocation, GTE will offer contiguous space to AT&T where available. GTE will also take AT&T and other collocator demand into account when renovating existing facilities and constructing or leasing new facilities.
- 2.2.2 GTE shall provide intraoffice facilities (e.g., DS0, DS1, DS3, OC3, OC12, OC48, and STS-1 terminations) as requested by AT&T to meet AT&T's need for placement of equipment, interconnection, or provision of service.
- 2.2.3 Other than reasonable security restrictions, where AT&T's physical collocated space is located in space that is partitioned separately from GTE facilities, GTE shall place no restriction on access to the AT&T collocated space by AT&T's employees and designated agents. Such space shall be available to AT&T designated agents twenty-four (24) hours per day each day of the week. Where AT&T's collocated space is located in space that is not partitioned separately from GTE's facilities, GTE shall provide AT&T designated personnel escort service to and from AT&T's collocated space. Such escort service shall be available twenty-four (24) hours per day each day of the week. In no case should any reasonable security restrictions be more restrictive than those GTE places on their own personnel.
- 2.2.4 GTE will not place any restrictions on AT&T's use of its collocated space, other than limitations specified in this Agreement or limitations based on space availability and reasonable security requirements, applied in a nondiscriminatory manner. AT&T may collocate the amount and type of equipment in its collocated space that is necessary for interconnection functions (which include interconnection with GTE's network and other collocated carriers or access to GTE's unbundled network elements), including but not limited to transmission equipment and multiplexing equipment; provided however that AT&T may not collocate enhanced services equipment or equipment that can perform

switching functions, including without limitation remote switching modules.

- 2.2.5 GTE shall allow the interconnection of AT&T to other carriers who have collocated space within GTE's facility (e.g., GTE shall not require AT&T to interconnect with other carriers outside of GTE's facilities). This connection will be provisioned using EISCC (expanded interconnection service cross connect jumper) and will be priced as set forth in Attachment 14.
- 2.2.6 AT&T may select its own vendors for all required engineering and installation services associated with its physically collocated equipment subject to GTE's reasonable restrictions on third party vendors that GTE has decertified with good cause. GTE shall maintain and provide AT&T with a list of all such decertified vendors. Notwithstanding GTE decertification of a third party vendor, AT&T may use such vendor for work associated with its collocated equipment if such vendor is the only third party vendor reasonably available to AT&T to perform such work. In no event shall GTE require AT&T to utilize GTE's internal engineering or installation work forces for the engineering and installation of AT&T's physically collocated equipment.
- 2.2.7 GTE shall provide basic telephone service with a connection jack as requested by AT&T from GTE for the collocated space. Upon AT&T's request, this service shall be available at the AT&T collocated space on the day that the space is turned over to AT&T by GTE.
- 2.2.8 GTE shall provide adequate lighting, ventilation, power, heat, air conditioning, and other environmental conditions for AT&T's space and equipment. These environmental conditions shall, subject to Section 23.19 of the General Terms and Conditions of this Agreement, adhere to Bell Communication Research (Bellcore) Network Equipment-Building System (NEBS) standards TR-EOP-000063.
- 2.2.9 [This section intentionally deleted.]
- 2.2.10 GTE shall provide all ingress and egress of fiber and power cabling to AT&T collocated spaces in compliance with AT&T's cable diversity standards to the extent such standards do not exceed GTE's cable diversity standards or the level of diversity it provides to itself. The specific level of diversity required for each site or Network Element will be provided in the collocation request. If AT&T's requirements exceed the level of diversity which GTE provides to itself in such site or to such Network Element, GTE shall at its sole discretion decide whether to provide such superior diversity. If GTE agrees to provide such superior

diversity, AT&T will pay for the provision of the diversity. In such event the price will be established on an individual case basis in accordance with the applicable GTE intrastate access tariff. AT&T will also pay for the provision of such diversity in circumstances where AT&T's requirements do not exceed those provided by GTE for itself in such site or to such Network Element, but where capacity does not exist in the fiber or power cabling to accommodate the provision of diversity requested by AT&T. In such circumstances, the price will be established on an individual case basis in accordance with the applicable GTE intrastate access tariff.

- 2.2.11 This Section 2.2.11 left intentionally blank.
- 2.2.12 GTE shall adhere to the DMOQs, set forth in Attachment 12.
- 2.2.13 GTE will provide answers to AT&T's Environmental, Health & Safety Questionnaire at the first contact meeting for each collocated space in each building in which collocated space is provided.
- 2.2.14 GTE shall provide AT&T with written notice at least two (2) business days prior to those instances in which GTE or its subcontractors may be performing non-emergency work in the general area of the collocated space occupied by AT&T, or in the general area of the AC and DC power plants which support AT&T equipment that is, or potentially may be, service affecting. GTE will inform AT&T by telephone of any emergency related activity that GTE or its subcontractors may be performing in the general area of the collocated space occupied by AT&T, or in the general area of the AC and DC power plants which support AT&T equipment. GTE will use diligent efforts to notify AT&T of any emergency related activity prior to the start of the activity so that AT&T can take any action required to monitor or protect its service.
- 2.2.15 GTE shall construct the collocated space in compliance with AT&T's collocation requests for cable holes, ground bars, doors, and convenience outlets as long as such request is in compliance with Applicable Laws and GTE's grounding requirements. To the extent that such request involves additional work beyond that required to construct the standard GTE collocation space, the price for such construction will be on an individual case basis or as established in accordance with Attachment 14. The standard collocation space shall be equipped with the following:
  - 2.2.15.1 Four 8ft high, or such other height as is appropriate for the specific space, 9 gauge chain link panels;

- 2.2.15.2 One AC outlet;
- 2.2.15.3 An electrical outlet sub-panel;
- 2.2.15.4 Adequate lighting;
- 2.2.15.5 Cage ground bar; and
- 2.2.15.6 One padlock set.
  
- 2.2.16 AT&T and GTE will complete an acceptance walk through of all collocated space requested from GTE. Exceptions that are noted during this acceptance walk through shall be corrected by GTE within five (5) business days after the walk through. The correction of these exceptions from the original collocation request shall be at GTE's expense.
  
- 2.2.17 GTE shall provide Telephone Equipment detailed drawings depicting the exact location, type, and cable termination requirements (i.e., connector type, number and type of pairs, and naming convention) for GTE Point of Termination Bay(s) to AT&T at the first mutually scheduled GTE/AT&T collocation meeting with respect to the specific request which meeting shall occur within thirty five (35) days of AT&T's request for collocated space, except in unusual cases.
  
- 2.2.18 GTE shall provide Telephone Equipment detailed drawings depicting the exact path, with dimensions, for AT&T Outside Plant Fiber ingress and egress into AT&T collocated space at the first mutually scheduled collocation meeting which meeting shall occur within thirty five (35) days of AT&T's request for collocated space, except in unusual cases. Such path and any areas around it in which AT&T must work to perform installation shall be free of friable asbestos, lead paint (unless encapsulated), radon and other health or safety hazards.
  
- 2.2.19 GTE shall provide detailed power cabling connectivity information including the sizes and number of power feeders to AT&T no later than five (5) days in advance of the first mutually scheduled collocation meeting.
  
- 2.2.20 GTE shall provide positive confirmation to AT&T when construction of AT&T collocated space is approximately 50% completed. This confirmation shall also include confirmation of the scheduled completion and turnover dates.



- 2.2.21 GTE will make every reasonable effort to meet the negotiated completion and turnover dates, which dates shall be no greater than 120 days from the original collocation request, except in unusual cases or in instances where GTE is precluded from meeting such dates because of delay caused by the need to obtain building permits, despite the use of every reasonable effort by GTE to obtain such permits in time to meet the negotiated dates.
- 2.2.22 GTE shall provide the following information to AT&T no later than five (5) business days in advance of the first mutually scheduled collocation meeting:
- 2.2.22.1 Work restriction guidelines.
- 2.2.22.2 GTE or Industry technical publication guidelines that impact the design of AT&T collocated equipment.
- 2.2.22.3 GTE contacts (names and telephone numbers) for the following areas:  
Engineering  
Physical & Logical Security  
Provisioning  
Billing  
Operations  
Site and Building Managers  
Environmental and Safety
- 2.2.22.4 Escalation process for GTE representatives (names, telephone numbers and the escalation order) for any disputes or problems that might arise pursuant to AT&T's collocation.
- 2.2.23 Power as referenced in this Attachment 3 refers to any electrical power source supplied by GTE for AT&T equipment. It includes all superstructure, infrastructure, and overhead facilities, including, but not limited to, cable, cable racks and bus bars. GTE will supply power to support AT&T equipment at equipment specific DC and AC voltages. At a minimum, GTE shall supply power to AT&T at parity with that provided by GTE to itself for similar equipment.
- 2.2.23.1 Central office power supplied by GTE into the AT&T equipment area, shall be supplied in the form of power feeders (cables) on cable racking into the designated AT&T equipment area. The power feeders (cables) shall perform in a manner equal to the efficiency and economy of the power feeders (cables) GTE provides for use with similar GTE